ACTUARIAL REPORT

on the

PUBLIC SERVICE GROUP INSURANCE FUND

as at

DECEMBER 31st, 1985

TURNBULL and TURNBULL

Chairman and Members,
Civil Service Superannuation Board,
Winnipeg, Manitoba.

1. Purpose

The Public Servants Insurance Act was adopted by the legislature in 1975. This Act created a Group Insurance Fund and gave the Board responsibility for administering the insurance plans which were established under the former Act or are established under this Act. The new Act also required a periodic Actuarial Report on the status of the Public Service Group Insurance Fund. The first Actuarial Report was made as at December 31st, 1976 (1976 Report). Reports are required to be made at least once every 3 years. The last report was made as at December 31st, 1982 (1982 Report). Therefore, an actuarial valuation of the Public Service Group Insurance Fund has been made as at December 31st, 1985.

The purpose of these reports is to:

(a) indicate the financial position of each part of the Public Service Group Insurance Fund (Fund),

(b) evaluate the sufficiency of the contribution rates currently being paid by employees and participating employers, and

(c) indicate the apparent break even premium rates for each plan of insurance and where appropriate, for each type of insurance protection based on the present and possible future distribution of insurance by age and sex.

2. Sources of Information

The data on which the valuation is based included:

(a) A tape containing information for each employee participating in the Fund and the Civil Service Superannuation Fund. The details of the information provided included: employer code, employee number, social insurance number, sex, date of birth, actual earnings in 1985, proportion of year worked in 1985, annualized salary, class of insurance code, amount of insurance and dependent's insurance code.

(b) A listing providing information for each employee participating in both the Fund and the Teachers' Retirement Allowances Fund. The details of the information provided included: name, social insurance number, sex, date of birth, annual salary, class of insurance code, amount of insurance and dependent's insurance code.

(c) A listing providing similar information for each member of the Manitoba Legislative Assembly who is participating in the Fund.

(d) A computer printout providing information for each employee of the Workers' Compensation Board participating in the Fund and the Retirement Plan for Employees of the Workers' Compensation Board. The details of the information provided included: name, social insurance number, sex, date of birth, annual salary, class of insurance code, amount of insurance and dependents' insurance code.

(e) A listing providing information for each Departmental Employee (casual and time-certificate) of the Department of Highways participating in the Fund but not participating in the Civil Service Superannuation Fund. The details of the information provided included: name, social insurance number, sex, date of birth, salary received in 1985, class of insurance code, amount of insurance and dependents' insurance code.

(f) A listing providing information for each Departmental Employee (casual and time-certificate) of the Department of Mines participating in the Fund but not participating in the Civil Service Superannuation Fund. The details of the information provided included: name, social insurance number, sex, date of birth, salary received in 1985, class of insurance code, amount of insurance and dependents' insurance code.

(g) Diskettes containing information for each retired employee participating in the Fund. The information provided included: name, social insurance number, sex, date of birth, date of retirement, class of insurance code, amount of insurance and dependents' insurance code.

(h) Three additional listings which provided similar information for each other retired employee participating in the Fund but not receiving a pension from the Civil Service Superannuation Fund.

(i) Listings which provided information for each employee at December 31st, 1985 whose contributions were being waived as a result of total disability.

(j) A copy of the Auditor's Report and financial statements for the Fund for the policy years ending April 30th, 1983, April 30th, 1984 and April 30th, 1985. In addition, interim financial statements were provided as at December 31st, 1985.

(k) A copy of Policy Number G. 2750 under which The Canada Life Assurance Company provides life insurance and accidental death and disablement insurance.

(l) A copy of Policy Number G. 3105 under which The Canada Life Assurance Company provides dependents' life insurance.

(m) A copy of the Public Servants Insurance Act.

(n) A copy of the financial statements, prepared by The Canada Life Assurance Company, for the 2 insurance policies. These statements provided information for the policy years ending April 30th of 1984, 1985 and 1986.

(o) A copy of the Actuarial Report on the financial position of the Civil Service Superannuation Fund as at December 31st, 1983 (1983 Superannuation Fund Report).

The data provided as at December 31st, 1985 was reviewed for missing information, illogical information, and was also compared to the data provided as at December 31st, 1982.

As a result of these procedures, changes were made to approximately 600 records. There were records for 30,800 members participating in the Fund as at December 31st, 1985.

3. Operation of the Plans

Three plans of insurance have been created in accordance with the authority granted under the Public Servants Insurance Act. These Plans consist of:

(a) The Group Life Insurance Plan for employees of the Province and its boards and agencies. Retired and disabled employees can continue to be insured if they were insured prior to retirement or disablement. This insurance is provided by The Canada Life Assurance Company under Policy Number G. 2750.

(b) The Accidental Death and Disablement Insurance Plan for employees who are participating in the Group Life Insurance Plan. Former employees are not insured under this Plan. This insurance is now provided by The Canada Life Assurance Company under Policy Number G. 2750.

(c) The Dependents' Group Life Insurance Plan for the spouses and children of employees who are participating in the Group Life Insurance Plan. Retired and disabled employees can continue to be insured for dependents' coverage if they were insured prior to retirement or disablement. This insurance is provided by The Canada Life Assurance Company under Policy Number G. 3105.

Changes to the Plans

The Employees' Group Life Insurance Plan (Plan) was amended effective July 1st, 1984. These amendments had an effect on the amount of life insurance and the expected cost of life insurance protection. As a result of these changes:

(a) A new Insurance Class was added (Class IV). Under this Insurance Class, employees are provided with life insurance equal to 4 times annual salary. Each employee in Insurance Class III on June 30th, 1984 was allocated to Insurance Class IV on July 1st, 1984 unless such employee chose to be insured in accordance with a different Insurance Class. This change caused an increase in the amounts of life insurance provided under the Plan.

(b) The maximum amounts of life insurance provided under the Plan were increased by 50%. The limits were formerly based on multiples of annual salary equal to $25,000. The limits are now based on multiples of annual salary equal to $37,500. This change causes an increase in the amounts of life insurance protection provided under the Plan. This change also affected the distribution of life insurance protection by age. The increase was greater at the older ages. If this change had not been offset by other changes, there would have been a 2.1% increase in the cost of providing life insurance protection.

(c) The 7% additional amount of life insurance was eliminated. This change decreased by 7.0% the cost of providing life insurance protection.

(d) Beginning at age 51, the multiples of life insurance begin to reduce. This change will also affect the distribution of life insurance by age. This change will cause less of the insurance protection to be provided at the older ages. This change in distribution is expected to decrease by 11.0% the cost of providing life insurance protection.

(e) Contributions are based on salary and Insurance Class. This reduces the rate of contribution. This occurs because, at age 51 and later, there is a reduction in the amount of life insurance provided per $1,000 of salary. This procedure is expected to decrease by 3.7% the rate of contribution.

(f) The amount of life insurance protection provided to each employee after June 30th, 1984 must not be less than the amount provided on June 30th, 1984. Employees are not required to pay for any additional insurance caused by this "minimum amount" test. The cost of this additional insurance protection will be paid by the Fund.

(g) The amount of life insurance protection provided after retirement was changed to complement the procedure used to determine the amount of life insurance protection provided after age 51.

(h) The insurance dividend was increased from 5% per year to 10% per year effective July 1st, 1984.

One other change of significance was also made. The instalment disability benefit was discontinued for employees of Manitoba Hydro. This benefit had been provided to employees of Manitoba Hydro who became totally and permanently disabled prior to age 60.

Each of the policies describes the financial arrangements between the Province and Canada Life. These consist of:

(a) the premium rates which are to be paid for each type of insurance protection,

(b) the charges made by Canada Life for the services it provides,

(c) the method to be used to determine experience refunds or deficits, and

(d) the effect which termination of the policy has on the amounts paid and received.

Dividends

On May 1st, 1979, an insurance dividend was declared. Insurance dividends have been declared each year since that date.

For the year ending April 30th, 1986, the insurance dividend was equal to 10% of the insurance in force at June 30th, 1984 up to the following maximums. The insurance in force at June 30th, 1984 includes additional insurance equal to 7% of the basic coverage.

Insurance Class	Maximum Amount of Increase
I	$2,675
II	5,350
III	8,025
IV	8,025

Contribution and Premium Rates

The contribution rates paid to the Fund and the premium rates paid to Canada Life under the 3 Plans are as follows:

Insurance	Basis for Contributions	Contribution Rate Paid to Fund		Premium Rate Paid to Canada Life	
		Bi-weekly	Monthly	Bi-weekly	Monthly
Life - Employees					
[illegible]	[illegible]	[illegible]	27.30¢	11.55¢	25.12¢
Life - Retired Employees					
(a) Retirements before 01.07.84					
- under age 65	per $1,000 of insurance	N/A	48.00¢	N/A	$1.43
- age 65 but under age 70	per $1,000 of insurance	N/A	96.00	N/A	1.43
(b) Retirement after 01.07.84					
- initial (Note 1)	(Note 2)	N/A	24.00¢	N/A	$1.43
- ultimate (Note 1)	(Note 3)	N/A	20.00	N/A	1.43
A.D.& D. - Employees					
- all employees	per $1,000 of insurance	2.10¢	4.57¢	1.54¢	3.35¢
Life - Dependents					
- all participating employees	per employee	$1.03	$2.24	$1.03	$2.2[illegible]

Notes:

1. The initial contribution rate applies to employees who retired in the first 12 months following July 1st, 1984. The ultimate contribution rate applies to employees who retire on or after July 1st, 1989. For employees who retire between July 1st, 1985 and June 30th, 1989, the contributions are a proration of the contributions produced using the initial contribution rate and the ultimate contribution rate. The proration is based on the complete years since July 1st, 1984.

2. Applied to the amount of life insurance in effect on June 30th, 1984.

3. Applied to annual salary immediately prior to retirement, increased by the appropriate multiple corresponding to the employee's Insurance Class.

The contributions are shared on the following basis:

Insurance	Sharing Arrangement		
	Employees	Employers	Fund
Basic Life Insurance for employees:			
- all Employees except Liquor Commission	72.5%	27.5%	-
- Liquor Commission employees			
(Class 1, 2, 3)	-	100.0	-
(Class 4)	50.0	50.0	-
Additional Life Insurance for employees	-	-	100.0%
Life Insurance for retired employees (See Note)	14.0	-	86.0
Accidental Death and Disablement Insurance	-	100.0	-
Dependents' Life Insurance	100.0	-	-

Note:

The percentages shown are applicable to the ultimate sharing arrangement which will come into effect. As indicated, retirements after July 1st, 1989 pay 24¢ per month per $1,000 of salary increased by the appropriate multiple corresponding to employee's insurance class. The premiums paid to Canada Life are $1.43 per month per $1,000 of insurance. The contribution rate paid by retired employees is 14% of this premium rate.

Group Life Insurance Plan

The policy issued by Canada Life for the Group Life Insurance Plan requires an annual tabulation of the amounts credited to and charged against this part of the policy during the policy year just completed. The amounts credited and charged to this part of the policy each year consist of:

Credits

(a) premiums paid to Canada Life,

(b) interest on waiver of premium reserves, and

(c) interest on the cash flow,

Less

Charges

(a) death claims,

(b) instalment disability payments to June 3rd, 1984,

(c) conversion charges,

(d) charges made for services provided,

(e) premium taxes, and

(f) a risk charge.

The claims incurred under this policy include the payments made on the death of employees, retired employees or disabled employees. These claims are reduced by the cancellation of waiver of premium reserves upon the death, recovery or attainment of age 65 of waiver of premium claimants. These reserves are maintained only for waiver of premium claims incurred prior to May 1st, 1972. As at December 31st, 1985 the value of this reserve was equal to $97,875.

No other reserves are being maintained by Canada Life under basic life insurance.

It is possible for a number of participants in the Plan to die as a result of one accident. A limit has been placed on the maximum amount which can be charged against the policy if this happens. The limit cannot exceed 3 times the maximum benefit. For the Employee's Group Life Plan this limit is $450,000. The charge for providing this limit was $7,920 for the year ending April 30th, 1986.

The instalment disability payments are in respect of employees of Hydro who became disabled before July 1st, 1984.

Conversion charges are assessed if an employee elects to retain his life insurance protection when he retires or terminates employment. These charges are based on the amount of insurance being converted and on the age of the employee. The following table illustrates the current conversion charges assessed by Canada Life:

Age at Date of Conversion	Charges per $1,000 of Insurance Protection Converted
30	$ 30
40	45
50	85
60	145
65	175

For the 3-year period ending on April 30th, 1985, the average conversion charge was $53 per $1,000 of life insurance protection converted.

If the former employee agrees to and passes a medical examination then the conversion charges are waived.

The charge made for the services provided by Canada Life is equal to 1.0% of premiums for the policy year ending April 30th, 1986.

The actual amount of taxes assessed by the Province on insurance premiums is tabulated and charged.

At the end of each policy year Canada Life agrees to pay the full amount of the surplus plus interest determined with respect to that year, less any deficits plus interest carried forward from prior years, within 8 months of the end of the policy year.

If this policy is terminated, the surplus or deficit is calculated as if the policy was still in effect. If on the final settlement date there is a surplus after taking into account any surplus or deficits plus interest carried forward from prior years, Canada Life will pay the amount of the surplus plus interest as a final settlement. If there is a deficit, Canada Life will be paid that amount plus interest from the Group Life Insurance part of the Fund or from the Province of Manitoba if this amount is insufficient.

In summary, the financial arrangement with Canada Life for the Group Life Insurance Plan has the following features:

(a) Experience refunds are paid by Canada Life if the amounts charged to the policy are less than the amounts credited to the policy; a deficit is carried forward to the following policy year.

(b) Interest is added to any surplus from the end of the policy year to the date the experience refund is paid by Canada Life.

(c) Interest is charged on any deficit from the end of the policy year to the date the deficit is recovered as a result of a subsequent surplus.

(d) No reserves are maintained by Canada Life other than the reserves created in respect of employees who became disabled prior to May 1st, 1972.

(e) Interest is credited to the policy on reserves created in respect of employees who became disabled prior to May 1st, 1972.

(f) Any surplus which emerges as a result of favourable claims experience occurring after the policy terminates is refunded to the policyholder; any deficit is recovered by payment from the policyholder.

(g) Interest is credited or charged on cash flow at a rate equal to the rate of interest for 90-day Treasury Bills issued by the Province of Manitoba.

(h) Interest is added to death claims from date of death to date of payment.

The amounts remitted to Canada Life depend on the claims experience and the distribution of insurance by age and sex. For example, the amount remitted in regard to retired employees increases if the average age of retired employees increases.

All experience refunds are credited to the employees' Group Life Insurance part of the Fund.

The following amounts are paid out of this part of the Fund:

(a) The premiums payable in respect of employees who have become disabled. These premiums are paid at the same rate as premiums paid on behalf of other employees participating in the Group Life Insurance Plan.

(b) The amount which is needed in addition to the contributions made by retired employees in order to pay the premiums charged for life insurance after retirement.

(c) The amount which is needed to finance the insurance dividend.

(d) The administrative and other expenses charged to this part of the Fund.

Accidental Death and Disablement Insurance Plan

Protection under the Accidental Death and Disablement Insurance Plan is also provided under Canada Life Policy Number G. 2750. The policy issued by Canada Life for the Accidental Death and Disablement Plan requires an annual tabulation of the amounts credited to and charged against this part of the policy during the policy year just completed. The amounts credited and charged to this part of the Policy each year consist of:

Credits

(a) premiums paid to Canada Life, and

(b) interest on the cash flow.

Charges

(a) accidental death and disablement claims,

(b) a charge made for services provided,

(c) premium taxes, and

(d) a risk charge.

The charges made for services provided by Canada Life is equal to 1.0% of premiums plus $225 per claim for the policy year ending April 30th, 1986. In addition, these charges include any expenses incurred by Canada Life as a result of claims ajudication or litigation.

For the Accidental Death and Disablement Plan the maximum amount which can be charged against this part of the Policy as a result of one accident is 3 times the maximum benefit or $225,000. The risk charge for providing this limit was $6,480 for the year ending April 30th, 1986.

The differences between the credits and charges are carried forward to April 30th, 1988. At that time, the surplus, if any, plus interest will be refunded. Any deficit plus interest that exists at that time will be carried forward to be recovered in subsequent years.

If this policy is terminated, the surplus or deficit is calculated as if the policy was still in effect. If on the final settlement date there is a surplus after taking into account any surplus or deficits carried forward from prior years, Canada Life will pay the amount of the surplus as a final settlement. If there is a deficit, Canada Life will be paid that amount from the Group Life Insurance part of the Fund or from the Province of Manitoba if this amount is insufficient.

At the beginning of 1986 Canada Life withheld an amount for contested claims. Interest is credited on this reserve.

Dependents' Insurance Plan

The premiums charged under the Dependents' Group Life Insurance Plan are paid by those employees who have elected to insure their dependents. Each year, Canada Life prepares financial statements which compare the premiums received under this policy with the claims paid, premium taxes charged and the agreed upon service charges made by Canada Life. If gains are realized, they are used to reduce any deficit or if there is no deficit the surplus is paid as an experience refund. If the experience is unfavourable the amount of the loss becomes a charge against any future gain.

In 1982, Canada Life requested an increase in the premium rate for dependents insurance. The request was made because of the deficit position of the premium rate stabilization reserve. The reason for this deficit was investigated, and it was determined that a major contributing factor was low participation amongst employees in some parts of the Civil Service and in some Boards and Agencies. A campaign to promote this part of the Plan was undertaken. The result was an increase in participation and a younger age distribution amongst dependents who are insured under the Plan. These changes should improve the financial position of the rate stabilization reserve in the future. They should also reduce the need to increase premiums for dependents' insurance in the future.

No allowance has been made for the deficit which exists in the Rate Stabilization Fund with Canada Life. At April 30th, 1985, this deficit was equal to $158,550. This deficit exists as a result of unfavorable claims experience in the past. All of this deficit was incurred when prior arrangements were in effect. The deficit was $174,479 at the time the prior arrangements ceased to be in effect. None of this deficit can be charged to the Fund or the Province if this deficit exists on the date the policy terminates.

This deficit will be reduced if there is favourable claims experience in the future.

It should be expected that any additional deficit incurred in the future will be the responsibility of the Fund.

4. Membership of the Plans

The information supplied indicated that the membership of the Plans as at December 31st, 1985 was as follows:

		Employees' Group Life Insurance Plan	Dependents' Group Life Insurance Plan	
		Group Life Insurance & Accidental Death and Disablement Insurance	Employees	Proportion of Employees with Group Life Insurance
Employees:	Males			
	<20	11	3	27.3
	20 - 24	778	117	15.0
	25 - 29	1,737	772	44.4
	30 - 34	2,603	1,725	66.3
	35 - 39	2,943	2,280	77.5
	40 - 44	2,292	1,977	86.3
	45 - 49	1,924	1,691	87.9
	50 - 54	1,685	1,454	86.3
	55 - 59	1,334	1,135	85.1
	≥60	972	811	83.4
		16,279	11,965	73.5%
	Females			
	<20	23	2	8.7%
	20 - 24	1,037	228	22.0
	25 - 29	2,112	809	38.3
	30 - 34	2,079	995	47.9
	35 - 39	1,636	948	57.9
	40 - 44	1,066	679	63.7
	45 - 49	865	563	65.1
	50 - 54	721	443	61.4
	55 - 59	486	245	50.4
	≥60	398	150	37.7
		10,423	5,062	48.6%
Former employees who are disabled:				
	- Males	141	113	80.1%
	- Females	78	37	47.4
Former employees who are retired:				
	- Males	2,838	1,274	44.9
	- Females	1,067	130	12.2

All employees are entitled to disability benefits. These benefits provide for waiver of contributions and a continuation of insurance. Former employees who receive a disability pension continue to qualify until age 65.

Former employees who are retired are not eligible for disability benefits.

The following table shows the amounts of group life insurance in force as at December 31st, 1985:

		Males	Females	Total
(a)	Employees	$1,780,048,200	$650,290,300	$2,430,338,500
(b)	Retired employees	44,812,400	8,680,400	53,492,800
(c)	Disabled employees	9,924,700	3,889,100	13,813,800
	Totals	$1,834,785,300	$662,859,800	$2,497,645,100

These amounts include the age reduction on life insurance protection. These amounts include the amount of insurance financed by the annual dividends.

5. Assumptions

The results contained in this Report are based on assumptions made in respect to those factors which will affect the status of the Fund, the level of contributions required or the premium rates charged in future years.

The factors which are of financial significance are:

(a) the rate of return which will be earned on the assets of the Fund,

(b) the rates at which salaries and, consequently, the amounts of life insurance protection will increase,

(c) the incidence of death while insured,

(d) the incidence of termination of employment,

(e) the incidence of becoming disabled,

(f) the value of benefits expected to be paid to an employee who becomes disabled,

(g) the incidence of retirement,

(h) the proportion of retired members who elect to continue to contribute for group life insurance protection after retirement,

(i) the proportion of terminating members who elect to convert to individual insurance and the charges for converting to this insurance,

(j) the expenses of administering the plans, including the charges made by Canada Life for the services it provides,

(k) the incidence of accidental death and disablement while insured,

(l) the incidence of death amongst insured dependents, the relative age of spouses, and the average number of children.

Assumptions are developed in respect of each of these factors in order to determine:

(i) the amounts of the contributions expected to be received and the premiums expected to be paid,

(ii) the present value of these expected contributions and premiums for the purposes of establishing the present financial position of the Fund.

Each assumption has been developed from the assumptions used in our 1982 Report.

Any differences between the actual experience and expectations based on the existing assumptions, have been analyzed. Where appropriate, the assumptions used previously have been modified to reflect the results of this study of the experience.

The assumed rate of return and the expected general increases in salaries are based on experience during the 20-year period prior to the valuation date.

The experience concerning the utilization of benefits has been studied over the 3-year period and 9-year period prior to the valuation date. The experience prior to this time is not as useful in developing the rates since it does not reflect subsequent changes in the Plans and in the level of economic activity.

The number of deaths, terminations, disablements, and retirements which actually occurred during these periods were compared to the number expected to occur. The numbers expected to occur were calculated by using the rates of utilization assumed in the 1982 Report.

A description of the studies made and the assumptions adopted follows.

(a) Rate of Return on the Assets of the Fund

As at December 31st, 1985, the assets of the Fund consisted of cash, Government of Canada bonds, Provincial bonds, short-term investments with the Minister of Finance, amounts on deposit with Canada Life, accrued interest plus any amounts receivable less any amounts payable. A portion of the amounts on deposit with Canada Life are expected to be transferred to the Fund.

The rates of return earned on the assets of the Fund are as shown in the following table:

Policy Year Ending April 30th	Annual Rate of Return
1979	8.99%
1980	14.80
1981	11.94
1982	16.90
1983	13.72
1984	10.99
1985	12.66
8 months ending 31.12.85	11.97
Average 01.05.79 - 31.12.85	12.75%

These rates of return were calculated using the book value of the amounts credited to the Fund and the investment income earned during each period.

The Fund may invest in any security that is an eligible investment for the Superannuation Fund. It is to be expected that a large portion of the Fund will, in future, be invested in bonds with a variety of terms to maturity. The balance of the Fund will likely continue to be invested in short-term notes and equivalent types of investments.

An actuarial valuation relates to events which are expected to happen in the future. As a result, the rates of return obtained in past years are important only to the extent that they constitute a good indication of the rates of return which can be expected to be earned in the future. The rate of return assumed in an actuarial valuation should represent a reasonable balance between current rates of return and the level of investment earnings expected to be realized in the future.

A good indication of the rates of return likely to be available in future years can be obtained from a study of the rates which have been available over a period in the past. It is important that the period studied be long enough to include a variety of economic conditions. This is achieved by using a 20-year period. In this Report, we have used the 20-year period ending December 31st, 1985.

A period as long as 20 years allows the effect of a variety of economic conditions to be reflected in the result obtained. It reduces the fluctuations and distortions which can occur, over shorter periods of time, due to business conditions and government controls.

If each month, for 20 years, equal amounts had been invested in federal bonds, the average rate of return would have been 9.59% per year. This calculation was made by using yields obtained from the McLeod Young Weir Long-Term Canada Index.

It is desirable to make allowance for the possibility that the rates of return which are available in the future may be less than the rates of return which were available during the latest 20-year period.

This allowance could be made by excluding from the calculation the very high rates of return that were available during the last 6 months of 1981. If this is done, the 20-year average rate of return becomes 9.42% per year.

The rate assumed is also affected by the following consideration. The assumed rate should take into account the effect which a decrease in the rate of inflation will have on the rates of return obtained in future. Due to the important financial consequences of any need to decrease the assumed rate, the rate chosen should continue to be satisfactory in periods when lower rates of inflation are being experienced.

On the basis of the foregoing considerations, it is reasonable to expect that the Fund will earn a rate of return of at least 9.00% per year, on average, in the future.

A proportion of the assumed rate of return is attributable to the expectation that inflation will exist in future. Inflation causes a decrease in purchasing power. Knowledgeable investors have sought to offset this decrease by charging rates of interest which, on average, make allowance for the expected rate of inflation during the term of the investment. This allowance is added to the real rate of return desired by the investor to produce the rate of interest charged on that investment.

This decrease in purchasing power can be measured by determining the average annual rate of increase in the Consumer Price Index. During the 20 years ending December 31st, 1985, the Consumer Price Index increased by an average of 6.84% per year.

This increase is also affected by the elimination of the increases in the Consumer Price Index during the last 6 months of 1981 from the period covered by the average. If that is done, the increase in the Consumer Price Index over the period is 6.77% per year.

The anticipated rate of return makes allowance for the possibility that the rate of inflation will be lower in the future than it has been in the past. Some allowance has been made for this lower rate by using a rate of inflation which is a little lower than the rate that would be justified by using the relevant part of the 20-year period. The allowance for inflation was reduced in proportion to the reduction made to the assumed rate of return. This caused a reduction of .27 of 1% in the assumed rate of inflation. As a result, the assumed rate of inflation is 6.50% per year.

If the inflationary component in the assumed rate of return of 9.00% is 6.50%, the real rate of return is expected to be 2.50% per year. These rates were also assumed in our 1982 Report.

There are 2 reasons for identifying the 2 parts of the rate of return. These are:

(i) The assumed rate of return is based on an assumption as to future economic conditions. So also is the assumption made as to the rate at which general increases in salary will occur in future. In order to ensure consistency, the same allowance for inflation, i.e. 6.50% per year, is used in developing both actuarial assumptions.

(ii) By identifying the real rate of return, a good indication can be obtained of the significance of the rate assumed in other than average economic conditions. The assumptions of a real rate of return of 2.50% per year implies that new investments obtained for the Fund are anticipated to yield a rate of return of 2.50% per year in excess of the average rate of inflation during the period these investments are held.

(b) Rates of Salary Increase

Salary increases occur as a result of:

(i) general increases. These increases in salary are granted to all employees and reflect changes in economic conditions, and

(ii) service, merit, and promotional increases. These increases in salary are granted on an individual basis to recognize an employee's service and increased value to the employer.

Each class of increase is considered separately in developing the rates at which salaries can be expected to increase in the future.

(i) General Increases in Salary Levels

The 2 components of general increases in salaries are:

(A) the inflationary component. Employees seek increases in salary in order to offset any decreases in the purchasing power which are caused by inflation, and

(B) the productivity component or increase in the standard of living component. The productivity component consists of that portion of general increases in salaries which are not offset by inflation. These increases are due to factors such as increases in the real value of goods and services produced per employed person. An increase in productivity is made possible by the greater use of automated or other equipment. Other increases can occur as a result of increases in qualifications needed to fulfill a position.

The inflationary component of future increases in salaries should be the same as the inflationary component included in the rate of return assumed to be earned on the assets of the Fund in future years. As explained in the previous subsection of this Report, the period used requires the allowance made for inflation in the future to be at the rate of 6.50% per year.

The productivity component is based on a study of increases in the average earnings of employed persons in Canada during the 20-year period ending December 31st, 1985. The productivity component is obtained by deducting the inflationary component from these increases in earnings. During this period, the productivity component was equal to 1.49% per year.

The rate of increase in the productivity component has decreased in recent years. In the last 6 years, the standard of living increased by an average of .27% per year.

Past increases in the standard of living were greater than increases in productivity during the same period. It is likely that at least part of this difference will need to be absorbed before normal increases occur. This will cause increases to be lower in the future than they have been over long periods in the past.

On the basis of these considerations, an allowance of 1.00% per year was made for the productivity component of general salary increases. This is the allowance which was made in our 1982 Report.

The expected general increase in salary is obtained by adding together the increases expected to occur in each component. On that basis, general increases in salary are expected to occur at a rate equal to 7.50% per year in future. This rate consists of an average anticipated productivity increase of 1.00% per year plus an allowance for future inflation at a rate of 6.50% per year.

(ii) Service, Merit and Promotional Increases

The assumptions made regarding increases in basic salary and in compensation over basic salary due to service, merit, or promotion are the same as those adopted for use in the 1983 Superannuation Fund Report.

The assumptions made regarding increases in salary due to service, merit or promotion are the same as those adopted for use in the 1983 Superannuation Fund Report.

(c) Incidence of Death While Insured

(i) Death in Service

A study was made of death claims amongst covered employees. The results of this study are shown in the following table:

	1983 - 1985			1977 - 1985		
	Actual	Expected	Ratio	Actual	Expected	Ratio
Males	123	178	69%	408	522	78%
Females	31	40	78	87	111	78
Total	154	218	71%	495	633	78%

The actual number of deaths was less than the number expected during both the 3-year period and 9-year period prior to the valuation date.

In the 1982 Report, the rates of mortality for males and females were reduced.

For this Report, a further reduction in the rates of mortality was made. This reduction reduced by 25% the difference between the actual number of deaths and the number expected to occur during the 9-year period prior to the valuation date.

On the basis of these new rates of mortality, 494 deaths were expected to occur amongst males and 105 deaths were expected to occur amongst females during the 9-year period prior to the valuation date.

(ii) Death After Retirement

A study was made of mortality rates after pension commences. This study differentiated between:

(A) employees who retired in at least average health, and

(B) employees who retired due to total disability.

This separation is necessary as there is a significant difference in the mortality rates of these 2 groups of former employees.

The experience of these 2 groups is described below:

(A) Employees who Retired in at Least Average Health

The results of the study of mortality amongst employees who retired in at least average health are shown in the following table:

	1983 - 1985			1980 - 1985		
	Actual	Expected	Ratio	Actual	Expected	Ratio
Males	236	201	117%	350	338	104%
Females	43	40	108	64	66	97
Total	279	241	116%	414	404	102%

The actual number of deaths amongst males was greater than the number expected during both the 3-year period and 6-year period prior to the valuation date. For the longer 6-year period the excess was slight.

As a result, no change was made to the rates of mortality amongst males for this Report.

The actual number of deaths amongst females was greater than the number expected during the 3-year period but less than the number expected during the 6-year period prior to the valuation date.

As a result, no change was made to the rates of mortality amongst females for this Report.

(B) Employees who Retired due to Total Disability.

The actual experience amongst employees who retired due to total disability was studied for the 1983 Superannuation Fund Report. The same rates of mortality as used for the 1983 Superannuation Fund Report have been used for this Report.

(d) Incidence of Termination of Employment

The rates of termination of employment used for this Report are the same as those used for the 1983 Superannuation Fund Report. These rates of termination were based on terminations leading to a cash settlement, retention of a deferred pension or some combination of both.

For the 1982 Report, a scale of select factors was developed which when applied to the ultimate rates of termination produced the rates of termination at durations of service of 4 years or less. These select factors were as follows:

Service	Factor
<1	2.00
1	1.60
2	1.40
3	1.25
4	1.10

For this Report, these factors were reviewed. As a result of this review, it was decided to continue in use these factors for this Report.

(e) Incidence of Disability

A study was made of those disablements which caused contributions to be waived. The results of this study are shown in the following table:

	1983 - 1985			1977 - 1985		
	Actual	Expected	Ratio	Actual	Expected	Ratio
Males	76	84	90%	219	249	88%
Females	33	25	132	91	71	128
Total	109	109	100%	310	320	97%

The actual number of disablements amongst male employees was less than the number expected during both the 3-year period and 9-year period prior to the valuation date. For female employees the opposite was true.

For the 1982 Report the rates of disablement were reduced for males and increased for females.

For this Report a further reduction in the male rates and a further increase in the female rates was made. The modification made to the rates of disability reduced by 25% the difference between the actual number of disablements and the number expected during the 9-year period prior to the valuation date.

On the basis of these new rates of disability, 241 disablements were expected to occur amongst males and 76 disablements were expected to occur amongst females during the 9-year period prior to the valuation date.

(f) Value of Disability Benefits

If an employee becomes disabled, he is eligible for a waiver of contributions.

This benefit permits the continuation of an employee's insurance if the employee becomes totally and permanently disabled. The contributions which the employee would otherwise have made are waived up to age 65. After age 65, contributions resume. The amount contributed is the same as the amount contributed by other retired employees.

For the 1982 Report the value at the date of disability of the waiver of contribution benefits was based upon the recovery and mortality rates contained in the 1970 Group Life Premium-Waiver Valuation Table. These rates are based upon the combined experience of 12 major life insurance companies. These rates were used to estimate the likelihood, at each duration of disablement, that a disabled person will recover or die while his insurance is in force.

A review of the use of this table was made. The rates of mortality of this table are based on a definition of disability which is more difficult to satisfy than the definition of disability applicable under Group Life Policy No. G2750.

As a result, the rates of mortality were reduced by 1/3. No change was made to the rates of recovery.

(g) Incidence of Retirement

The rates of retirement adopted for this Report are the same as the rates used for the 1983 Superannuation Fund Report. These rates reflect only retirements for reasons other than disability.

(h) Proportion of Members Continuing Insurance Protection After Retirement

On retirement, a participant may elect to:

(i) continue to contribute for Group Life Insurance,

(ii) cease making contributions.

A large percentage of participants continue to make contributions. Over the 3-year period ending December 31st, 1985, 1,127 of 1,329 or 85% of the employees who retired elected to continue making contributions.

Those who ceased making contributions are insured for $1,000.

We have assumed that all retiring participants will continue to make contributions for Group Life Insurance.

This assumption makes an allowance for the possibility that, in future, a larger proportion of employees will elect to contribute for Group Life Insurance after retirement.

(i) Proportion of Terminating Members Converting to Individual Insurance and the Conversion Charges

The following procedure was used to evaluate the likelihood that an employee will convert his group life insurance to individual insurance if his insurance is terminating or being reduced.

In recent years, there has been an increase in the proportion of terminating employees who elect to convert their life insurance protection. The proportion of employees per 1,000 employees whose employment terminated who converted their insurance protection was as follows:

1980 - 1982	1983 - 1985
5	7

For the 1982 Report, it was assumed that 5 terminations out of every 1,000 terminating employees who have an opportunity to convert life insurance would do so. This assumption has been continued in use for this Report.

During the 3-year period prior to the valuation date the average conversion charge was equal to $53 per $1,000 of insurance converted.

For the 1982 Report it was assumed that the special charge per $1,000 of insurance converted would be equal to $75. This assumption has been continued in use for this Report.

(j) Expenses of Administering the Plans

(i) Civil Service Superannuation Board

The administration charges made by The Civil Service Superannuation Board are equal to .75% of the contributions made to the various Plans. It has been anticipated that this method of determining charges will continue indefinitely in the future.

(ii) Canada Life

For the policy year beginning April 1st, 1985, Canada Life has indicated that its total charges will not exceed the following proportions of the premiums it receives in respect to each Plan:

(A) Employees' Group Life Insurance Plan - 1.0%

(B) Accidental Death and Disablement Plan - 1.0% plus $225 per claim (based on premium rate of 1.54¢ bi-weekly)

(c) Dependents' Group Life Insurance Plan - 1.0% plus $25 per dependent claim.

(k) Incidence of Accidental Death and Disablement while Insured

A study was made of Accidental Death and Disablement claims. The results of this study are shown in the following table:

	1983 - 1985			1977 - 1985		
	Actual	Expected	Ratio	Actual	Expected	Ratio
Males and Females	20	31	65%	84	92	91%

The actual number of claims was less than the number expected during the 3-year period and the 9-year period prior to the valuation date. This is a continuation of the trend observed in the 1982 Report.

As a result, the rates of accidental death and disablement were reduced. This reduction reduced by 25% the difference between the actual number of claims and the number expected during the 9-year period prior to the valuation date.

On the basis of these new rates of accidental death and disablement, 90 claims would have been expected to occur during the 9-year period prior to the valuation date.

(l) Dependents

The information provided identified those employees who have elected to insure their dependents. No other details were provided in respect of dependents.

For the purposes of determining the average amount of insurance protection provided on the lives of dependents information available on studies of other large groups of public sector employees was used. This information was used to assume average age differences for spouses and the average number of children per employee.

A study was made of the actual number of spouses' and children's death claims. The results of this study were as follows:

	1983 - 1985			1980 - 1985		
	Actual	Expected	Ratio	Actual	Expected	Ratio
Male Spouses	53	56	95%	97	92	105%
Female Spouses	61	55	111	121	107	113
Children	31	31	100	57	58	98
Total	145	142	102%	275	257	107%

These results must be interpreted cautiously, since the expected number of claims includes the effects of the assumptions as to mortality among dependents, the relative age of spouses and the average number of dependents. The expected number of claims is also based on the proportion of employees in each age group who were participating in the Dependents Insurance Plan as at December 31st, 1985. This is necessary because no information is provided about the actual ages of spouses or the actual number of children per family.

The actual number of claims amongst male spouses was less than the number expected during the 3-year period but greater than the number expected during the 6-year period prior to the valuation date. As a result, no change was made to the rates of mortality applicable to male spouses.

The actual number of claims amongst female spouses was greater than the number expected during both the 3-year period and 6-year period prior to the valuation date. This excess decreased in the most recent 3-year period. As a result, no change was made to the rates of mortality applicable to female spouses.

The actual number of claims applicable to children was equal to the number expected during the 3-year period and similar to the number expected during the 9-year period prior to the valuation date. As a result, no change was made to the rates of mortality applicable to children.

For the 1982 Report, assumptions as to differences in average age between spouses and employees were adopted. These assumptions were continued in use for this Report.

6. Summary of Actuarial Assumptions Used in this Report

(a) Rate of Return on the Assets of the Fund - 9.00% per year.

(b) Annual Rates of Salary Increase (including an allowance of 7.50% per year for future general increases in salary levels):

Age	Males	Females
20 - 25	15.2%	13.3%
25 - 30	12.7	11.5
30 - 35	10.7	10.5
35 - 40	9.4	9.9
40 - 45	8.7	9.8
45 - 50	8.5	9.0
50 - 55	8.2	8.6
55 - 60	8.1	8.5
60 - 65	8.0	8.3

(c) Incidence of Death While Insured

(i) Annual Rates of Death in Service (for selected ages):

Attained Age	Males	Females
20	.0026	.0007
25	.0009	.0006
30	.0008	.0006
35	.0011	.0008
40	.0019	.0012
45	.0030	.0015
50	.0050	.0022
55	.0080	.0031
60	.0110	.0043
64	.0136	.0053

(ii) Annual Rates of Death After Retirement (for selected ages):

Attained Age	Non-Disabled		Disabled	
	Males	Females	Males	Females
40	N/A	N/A	.0756	.0403
50	N/A	N/A	.0674	.0359
60	.0129	.0048	.0713	.0380
70	.0299	.0146	.0971	.0518
80	.0761	.0487	.1749	.0933
90	.1937	.1591	.3473	.1852
100	.4333	.4134	1.0000	1.0000

(d) Termination of employment

(i) Annual Rates of Termination of Service

(A) Annual rates of termination applicable to employees with 5 or more years of service (for selected ages):

Attained Age	Males	Females
25	.0718	.1965
30	.0472	.1330
35	.0298	.0680
40	.0198	.0500
45	.0142	.0380
50	.0098	.0295
55	.0062	.0160
60	.0050	.0075

(B) The rates of termination applicable to employees with less than 5 years of service were obtained by multiplying the above rates by the appropriate factor from the following table:

Service	Factor
<1	2.00
1	1.60
2	1.40
3	1.25
4	1.10

(e) Annual Rates of Disability (for selected ages):

Attained Age	Males	Females
20	.0000	.0001
25	.0000	.0001
30	.0001	.0001
35	.0001	.0002
40	.0002	.0004
45	.0004	.0007
50	.0008	.0017
55	.0042	.0042
60	.0112	.0070
64	.0170	.0092

(f) Value of Waiver of Contributions Benefit:

Attained Age	Value of Waiver of Contributions Benefit at Approval of Disability (per $1,000 of Insurance)
22	$ 80
27	121
32	163
37	197
42	230
47	255
52	244
57	199
62	92

(g) Annual Rates of Retirement (for selected ages):

Attained Age	Males	Females
55	.0473	.0726
56	.0315	.0361
58	.0417	.0519
60	.1257	.1750
62	.1206	.1605
64	.1704	.2107
65	1.0000	1.0000

(h) Proportion of Retirements where Post-retirement Insurance Protection is expected to be elected.

All retiring employees are assumed to elect the full amount of life insurance protection available.

(i) Proportion of Terminating Members Converting to Individual Insurance and the Conversion Charges:

It has been assumed that out of each 1,000 terminations, 5 persons will elect to convert their group life insurance to individual life insurance and that Canada Life will levy a conversion charge of $75 per $1,000 of life insurance converted.

(j) Expenses of Administering the Plans:

(i) Civil Service Superannuation Board

- .75% of total contributions made to all plans.

(ii) Canada Life

- 1.0% of premium for group life insurance protection, plus
- 1.0% of premium for accidental death and disablement insurance protection, plus $225 per accidental death and disablement claim, plus
- 1.0% of premium for dependents' life insurance protection plus $25 per dependent claim.

(k) Annual Rates of Accidental Death and Disablement (for selected ages):

Attained Age	Rates
20	.000630
30	.000322
40	.000322
50	.000390
60	.000519

(l) Dependents

(i) Annual rates of death among insured dependent spouses:

Attained Age	Males Spouses	Females Spouses
20	.0015	.0007
30	.0009	.0004
40	.0018	.0009
50	.0055	.0027
60	.0140	.0070

(ii) Relative age of insured dependent spouses:

Age of Employee	Age of Male Spouses	Age of Female Spouses
20	22	19
30	32	28
40	43	37
50	53	46
60	64	55

(iii) Average number of children and rates of death of insured dependents:

	Males		Females	
Attained Age of Employee	Average Number of Children	Annual Rate of Death for Each Insured Child	Average Number of Children	Annual Rate of Death for Each Insured Child
20	0.2	.00139	0.1	.00139
30	1.4	.00050	0.8	.00046
40	2.4	.00043	1.8	.00044
50	1.4	.00045	0.5	.00047
60	0.5	.00047	0.0	N/A

7. Valuation Results - Present Participants

The Fund receives contributions from and on behalf of participating members and in turn remits premiums to Canada Life in respect of the insurance provided. The rates of contribution paid to the Fund for the Employees' Group Life Insurance Plan and the Accidental Death and Disablement Plan are different from the premium rates paid to Canada Life.

The premiums remitted to Canada Life under the Employees' Group Life Insurance Plan have been calculated to reflect the cost of:

(a) basic life insurance protection for employees and retired employees including the $1,000 paid-up life insurance available,

(b) additional insurance due to the minimum amount test,

(c) the 10% insurance dividend, and

(d) the waiver of contributions when an employee becomes disabled.

The premiums remitted to Canada Life under the Accidental Death and Disablement Plan and the Dependents Group Life Insurance Plan have been calculated to reflect the cost of this insurance protection.

The Fund is required to pay:

(a) the agreed upon premiums, and

(b) a share of the expenses incurred by the Superannuation Board.

The financial position of the Fund is indicated by the relationship between:

(i) the present value of the premiums expected to be paid to Canada Life in respect of the benefits promised and the expenses expected to be incurred, and

(ii) the present value of the funds available to finance these premiums as they become due.

The actuarial valuation is the process whereby this relationship is quantified.

The present value of the premiums in respect of a benefit is determined separately for each benefit which the Fund provides. For each benefit, each employee, and each future year of service in the Fund, we determine:

(i) the probability of a benefit becoming payable at each future age based on the actuarial assumptions outlined in the previous Section of this Report,

(ii) a discount factor which makes allowance for the portion of the benefit which it is expected will be financed by future investment earnings, and

(iii) the amount of the expected benefit. The expected benefit is calculated using the salary expected to be received prior to the occurrence of this event.

The present value of the premiums for each benefit for each employee is the sum of the product of these 3 components over all possible future years of service for that employee. The present value of the premiums for each benefit is the sum of the present values obtained for all employees.

The present value of the premiums in respect of pensioners and former employees on waiver of contributions is determined by a similar process.

The principal sources of funds available to finance the premiums are:

(i) the present assets of the Fund, and

(ii) the contributions expected to be made to the Fund by the employees and the employers.

The present value of the contributions which are expected to be received in the future from employees already participating in the Fund are valued in a similar way. For each employee the expected contributions for each year in the future are multiplied by the probability, based on the actuarial assumptions, that the employee will still be participating in the Plan at that age in the future and by a discount factor. The present value of future contributions for each employee is the sum of the present values obtained over all possible future years of service for that employee. The present value of future contributions is the sum of the present values obtained for all employees.

The Valuation Balance Sheets reflect the financial position of each part of the Fund with respect to the present participants. While new contributors will affect the financial position, their number and distribution by age, sex and amount of insurance is much less easy to predict than the other factors taken into account in the valuation.

The following Balance Sheets anticipate that the relationship between the contributions, paid by employees or other persons participating in the Fund and on their behalf by participating employers, and the premiums paid to Canada Life will remain the same as it existed at the time this Report was prepared.

The present value of future contributions and the present value of future premiums are shown separately only if the value of future premiums exceeds the value of future contributions. · Otherwise only the excess of the present value of future contributions over the present value of future premiums is shown.

The Public Service Group Insurance Fund
Employees' Group Life Insurance Plan Part
Balance Sheet
as at December 31st, 1985

ASSETS	
Plan's share of	
- cash in bank	$ 12,991
- investments at amortized cost	18,115,847
- accrued interest on investments	288,630
Due from Dependents' Group Life Insurance Plan	57,575
Funds held by Canada Life	
- disability reserves	97,875
- amounts to be transferred to the Fund	184,872
Value of future contributions	
- in excess of the contributions required to provide life insurance	11,531,400
Value of future contributions after retirement	
- present retirees (healthy)	1,006,000
- present retirees (disabled)	35,700
- future retirees (healthy)	7,825,300
- future retirees (disabled)	306,600
TOTAL ASSETS	**$39,462,790**

The Public Service Insurance Fund
Employees' Group Life Insurance Plan Part
Balance Sheet
as at December 31st, 1985

LIABILITIES	
Accounts Payable	
- to Superannuation Fund	$ 43,256
Investment Reserve	136,609
Value of future insurance benefits provided after retirement	
- present retirees (healthy)	4,624,300
- present retirees (disabled)	224,600
- future retirees (healthy)	13,761,800
- future retirees (disabled)	925,300
Value of future insurance benefits for present disabled employees	2,746,900
Value of waiver of future premiums for future disabled employees	9,485,500
Value of future administration expenses during next 3 years	181,600
Value of 10% insurance dividend 1986	517,700
TOTAL LIABILITIES	$32,647,565
SURPLUS	$ 6,815,225

The Public Service Group Insurance Fund
Accidental Death and Disablement Insurance Plan Part
Balance Sheet
as at December 31st, 1985

ASSETS	
Plan's share of	
- funds held by The Minister of Finance in Trust	$2,111,004
- accrued interest	33,634
- funds to be transferred from Canada Life	474,418
Value of future contributions	
- in excess of contributions required to provide insurance	1,706,400
TOTAL ASSETS	$4,325,456
LIABILITIES	
Accounts Payable	$ 5,040
Investment Reserve	15,919
Value of future administration expenses during next 3 years	18,500
TOTAL LIABILITIES	$ 39,459
SURPLUS	$4,285,997

The Public Service Group Insurance Fund
Dependents' Group Life Insurance Plan Part
Balance Sheet
as at December 31st, 1985

ASSETS	
Value of future contributions	
- in excess of contributions required to provide insurance	$385,300
Value of future contributions after retirement	
- present retirees	100,600
- future retirees	258,900
TOTAL ASSETS	$744,800
LIABILITIES	
Due to Employees' Group Life Insurance Plan	$ 57,575
Value of future insurance benefits after retirement	
- present retirees	274,100
- future retirees	395,000
Value of future administration expenses during next 3 years	9,300
TOTAL LIABILITIES	$735,975
SURPLUS	$ 8,825

8. Analysis of Valuation Results

(a) Group Life Insurance Plan Part of the Fund

The Group Life Insurance Plan part of the Fund has a surplus equal to $6,815,225 as at December 31st, 1985. The 1982 Report indicated this part of the Fund had a surplus equal to $5,396,052 as at December 31st, 1982.

The financial position at December 31st, 1985 can be reproduced if the surplus at December 31st, 1982 is adjusted to recognize the various changes to the financial position which occurred in the last 3 years. This procedure is demonstrated in the following schedule.

Surplus as at December 31st, 1982	$5,396,052
Interest earned on surplus at 9.00%	1,592,000
Expected surplus at December 31st, 1985 before effect of change in Plan, actual experience and changes in assumptions	$6,988,052
Effect of Change in Plan	(5,891,300)
Effect of actual experience	3,766,773
Surplus as at December 31st, 1985 before effect of changes in assumptions	$4,863,525
Effect of changes in assumptions	1,951,700
Surplus as at December 31st, 1985	$6,815,225

The following factors influenced the actual experience during the period under review and improved the financial results:

(i) The actual proceeds from investments were greater than the amounts assumed by an amount equal to $1,378,800.

(ii) The experience refunds paid by Canada Life during the valuation period were as follows:

Policy Year	Experience Refund
1984	$ 809,226
1985	1,248,721
1986	202,958
Total	$2,260,905

(b) Accidental Death and Disablement Plan Part of the Fund

The Accidental Death and Disablement Plan Part of the Fund has a surplus equal to $4,285,997 as at December, 1985. The 1982 Report indicated this part of the Fund had a surplus equal to $1,964,199 as at December 31st, 1982.

The financial position at December 31st, 1985 can be reproduced if the surplus at December 31st, 1982 is adjusted to recognize the various changes to the financial position which occurred in the last 3 years. This procedure is demonstrated in the following schedule.

Surplus as at December 31st, 1982	$1,964,199
Interest earned on surplus at 9.00%	579,500
Expected surplus at December 31st, 1985 before effect of actual experience and changes in assumptions	$2,543,699
Effect of actual experience	1,604,498
Surplus as at December 31st, 1985 before effect of changes in assumptions	$4,148,197
Effect of changes in assumptions	137,800
Surplus as at December 31st, 1985	$4,285,997

The surplus as at December 31st, 1982 was retained in order to:

(i) help ensure that the lower rates of contribution could be continued in effect, and

(ii) provide for the additional payments which would have to be made to Canada Life if this part of the policy is terminated before April 30th, 1985.

The following factors influenced the actual experience during the period under review and improved the financial results:

(i) The favourable claims experience which occurred in the policy years during the period. An experience refund equal to $820,241 was paid to the Fund in 1985 in respect of the Accidental Death and Disablement Plan part of the Fund.

(ii) The actual proceeds from investments were greater than the amounts assumed by an amount equal to $153,200.

(c) Dependents Group Life Insurance Plan Part of the Fund

The Valuation Balance Sheet indicates the Dependents Group Life Insurance Plan part of the Fund has a surplus equal to $8,825 as at December 31st, 1985.

The 1982 Report indicated that the Dependents' Group Life Insurance Plan part of the Fund had a surplus of $4,343 as at December 31st, 1982.

These results indicate that this part of the Fund is expected to be self-supporting in the future.

9. Premium Rates

The break even premium rates which are needed in order to provide the insurance protection promised under each Plan and the agreed upon charges for services and other costs have been determined on the basis of the assumptions described in Section 5 of this Report and the distribution of insurance by age and sex as at December 31st, 1985.

The break even premium rates and the premium rates paid to Canada Life are shown in the following table:

Insurance	Basis for Contributions	Break-Even Premium Rate		Premium Rate Paid to Canada Life	
		Bi-weekly	Monthly	Bi-weekly	Monthly
Life - Employees					
Class I	per $1,000 of annual salary	10.19¢	22.16¢	11.55¢	25.12¢
Life - Retired Employees	per $1,000 of insurance	N/A	$1.36	N/A	$1.43
A.D& D. - Employees					
- all employees	per $1,000 of insurance	1.47¢	3.20¢	1.54¢	3.35¢
Life - Dependents					
- all participating employees	per employee	92¢	$2.00	$1.03	$2.24

Additional premiums are needed if an insurance dividend is granted for a policy year. The amount needed to finance an insurance dividend is determined by the size of the dividend.

For example, if the dividend is equal to 10% of the amount applicable to the insurance classification in effect on July 1st, 1984, the additional premium is .7 of 1% of the bi-weekly premium per $1,000 of life insurance protection.

The foregoing information indicates that some reduction could be made to the premium rates currently being paid for employees group life insurance.

The break-even premium rate for accidental death and disablement insurance is close to the premium rate paid to Canada Life.

A number of years of favourable claims experience will be needed before it is possible to justify a reduction in the premium rates being charged for dependents' group life insurance protection.

10. Comments and Recommendations

During the last 3 years, the actual experience has been more favourable than expected.

This has caused a substantial surplus to be reported to the Group Life Insurance and the Accidental Death and Disablement Insurance parts of the Fund.

Further improvement in the financial position occurred as a result of the use of a portion of that experience in determining the expected experience in the future.

The financial position of the Dependents' Life Insurance part of the Fund is less favourable. Further improvements in experience are expected to occur in the future if the present rate of participation is maintained or increased in the future.

The assets of each part of the Fund together with the contributions expected to be made in future by, and on behalf of, present employees and retired employees are sufficient to pay the benefits promised under each Plan, as these benefits become due.

The Surplus can be used in any way considered to be desirable.

It would likely be desirable to make the insurance dividend a percentage of the insurance protection currently in effect. At present, the dividend is based on the insurance classification in effect on July 1st, 1984.

We shall be pleased to discuss this Report with you at your convenience.

DATED at Winnipeg this 2nd day of March, 1987.

Respectfully submitted,

Louis E Clement

Actuary

John A. Turnbull.

Actuary